

Notes on predaceous biting midges (*Diptera*, *Ceratopogonidae*) from Poland

Jarosław KRZYWIŃSKI

Received: 6 Apr. 1994

Accepted for publication: 21 May 1994

KRZYWIŃSKI J. 1994. Notes on predaceous biting midges (*Diptera*, *Ceratopogonidae*) from Poland. Acta zool. cracov. **37**(2): 33-38.

Abstract: Three biting midge species *Allohelea tessellata* (ZETTERSTEDT), *Serromyia tecta* BORKENT and *Mallochohelea setigera* (LOEW) (*Ceratopogonidae*) are reported for the first time for the Polish fauna. Diagnostic descriptions are given along with the records; male of *Allohelea tessellata* is illustrated.

Key words: *Diptera*, predaceous *Ceratopogonidae*, *Allohelea*, *Mallochohelea*, *Serromyia*.

Jarosław KRZYWIŃSKI, Department of Invertebrate Zoology, University of Gdańsk, al. Piłsudskiego 46, 81-378 Gdynia, Poland.

During recent field studies on biting midges (*Diptera*, *Ceratopogonidae*) in Poland three species of predaceous ceratopogonids not reported yet from this country (SZADZIEWSKI 1991) were collected.

The following abbreviations are used in the descriptions: TR I, TR II, TR III (tarsal ratio of fore, mid and hind leg, respectively) – the length of basitarsus divided by the length of the second tarsomere, CR (costal ratio) – the length of costa measured from the basal arculus divided by the wing length, HC/T5 – length of hind leg claw divided by length of hind leg tarsomere 5.

Allohelea tessellata (ZETTERSTEDT), 1850

Figs 1-2

Ceratopogon tessellatus ZETTERSTEDT, 1850: 3642 (♀, Sweden).

Monhelea tessellata (ZETTERSTEDT); EDWARDS, 1926: 410 (♀, =*illustris*, England, fig.); GOETGHEBUER, 1934: 53 (♀, notes, distribution, fig.); WIRTH, 1953: 152 (♂, described, England, fig.).

Allohelea tessellata (ZETTERSTEDT); WIRTH and GROGAN, 1988: 15 (combination).

Ceratolophus tessellatus (ZETTERSTEDT); KIEFFER, 1906: 61 (combination, misspelling).

Monhelea tessellata (ZETTERSTEDT); SZADZIEWSKI, 1986: 77 (♀, redescribed, figs, misspelling).

Ceratopogon illustris WINNERTZ, 1852: 53 (♀, West Germany, England).

Monhelea illustris (WINNERTZ); GOETGHEBUER, 1920: 65 (♀, Belgium).

Description. Male. Head: Antenna (Fig. 1A) length 0.79 mm, AR 0.92. Segments 3-12 fused; nine proximal segments of flagellum as well as the basal half of the tenth segment pale, distal portion of flagellum blackish. Plume well developed, dark brown, reaching the middle of the last antennal segment. Palpus five-segmented (Fig. 1B). First and two distal segments dark, second and third ones pale. Third segment moderately swollen, with small round sensory pit; length 60 μ m. Eyes bare, separated.

Thorax: Scutum blackish brown, scutellum in the middle yellow. Legs (Fig. 2B-D). Fore and middle legs brown. Fore basitarsus with three ventral spines, one small distal spine on the second, third and fourth tarsomere. Basitarsus of middle leg with one basal and two distal spines, second and third tarsomere with a pair of distal spines. Hind leg with femur and tibia greatly swollen, dark brown. Tibial comb composed of eight spines (Fig. 2E). Basitarsus with one basal and two very strong distal spines. Second tarsomere with two very strong distal spines. Hind leg lengths from femur to T5: 750-690-270-170-80-110-110 μ m, respectively. Knees of all legs yellow. Tarsi pale. Fourth tarsomere of fore and middle leg cylindrical, of hind leg elongate. Claws of fore and middle leg small and equal, with basal teeth, tips bifid. Claw of hind leg very long, simple, with short basal tooth. TR I 2.08, TR II 2.42, TR III 1.63. Wing with pattern characteristic of the genus (Fig. 2A); length 1.24 mm, width 0.40 mm, CR 0.73. Halter pale.

Genitalia (Fig. 1C, D): Ninth tergite short, broad, distal portion tapering gradually. Ninth sternite bearing numerous setae. Gonocoxite nearly twice as long as broad. Gonostyle slender, curved, with blunt tip, 0.7 length of gonocoxite. Basal sclerite of aedeagus nearly three times as broad as long, anterior margin contiguous with ninth sternite, posterior margin broadly notched. Distal sclerite with wide lateral arms and sharp-pointed caudal median apex which is shifted ventroanteriorly. Parameres connected near bases by a broad bridge with a heavily sclerotized anterior margin. At the bridge parameres stout, tapering to the distal halves which are very slender and curved ventroanteriorly. Ends of parameres with sharp tips.

Material examined. Wolin Island, Warnowo, 23 vi 1993, sweeping from *Aegopodium podagraria* L. flowers, 1 σ , J. KRZYWIŃSKI.

Discussion. WIRTH (1953) pointed out that the specimen of *Monohalea tessellata* which he examined (from Norfolk, Hatfield, England) was unsatisfactory for a description of external characters as it had been glued to a card when wet. He gave only description of male genitalia and added a short remark on spines of hind tarsi. His specimen had a small crescentic, median sclerite borne on the ventroposterior margin of basal plate of aedeagus. Such a structure is not visible in genitalia of the male collected in Poland, however other characters agree with description by WIRTH and there is no doubt that both specimens belong to the same species.

Monohalea tessellata sensu TOKUNAGA (1940) is a different, probably as yet unnamed species.

Distribution. The species recorded from Belgium, England, Germany, Sweden and (?) Austria. This is the first record of the species in Poland.

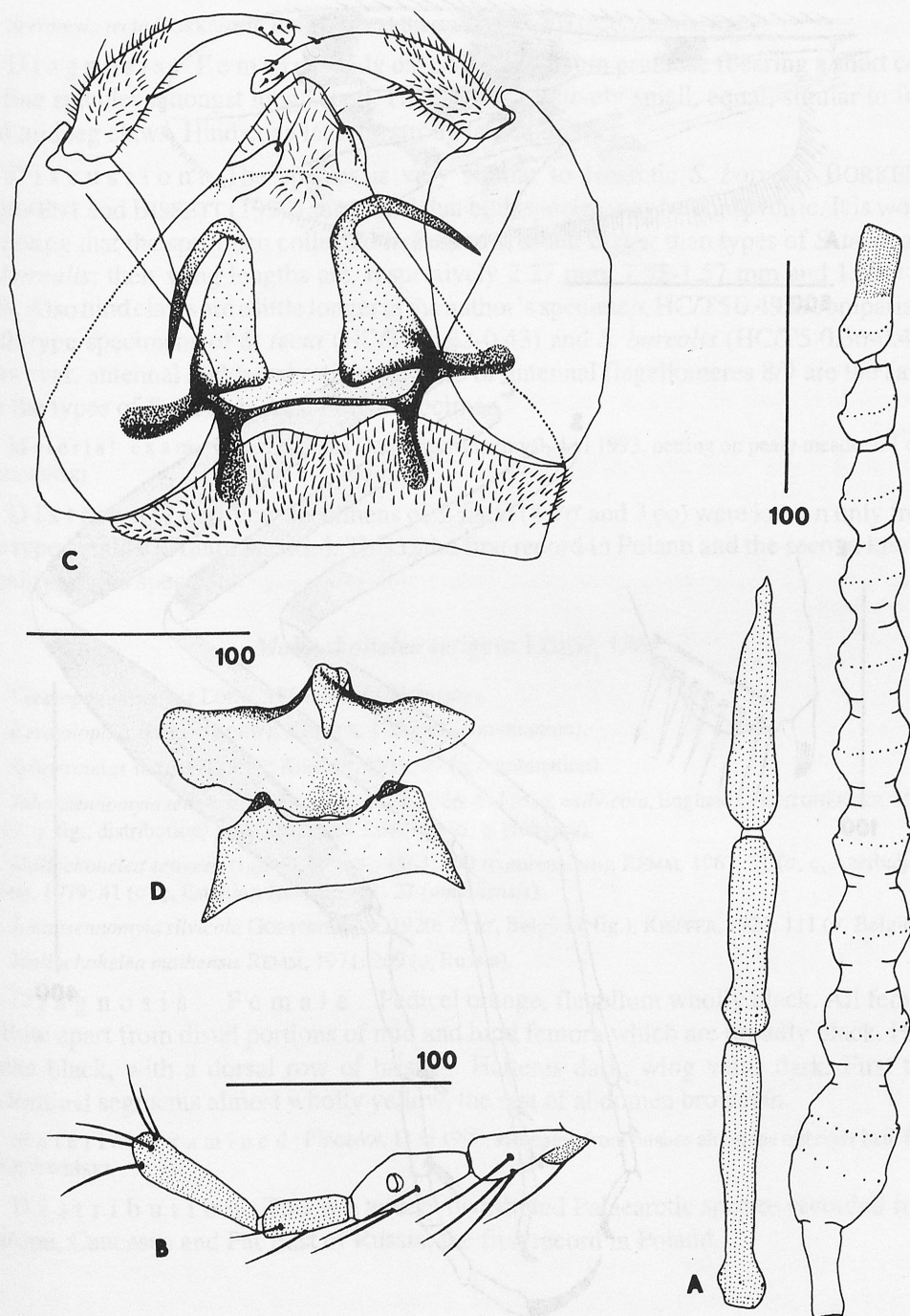


Fig. 1. *Allohelea tessellata* (ZETT.): A - antenna; B - palpus; C - genitalia, aedeagus removed; D - aedeagus. Scale in μm .

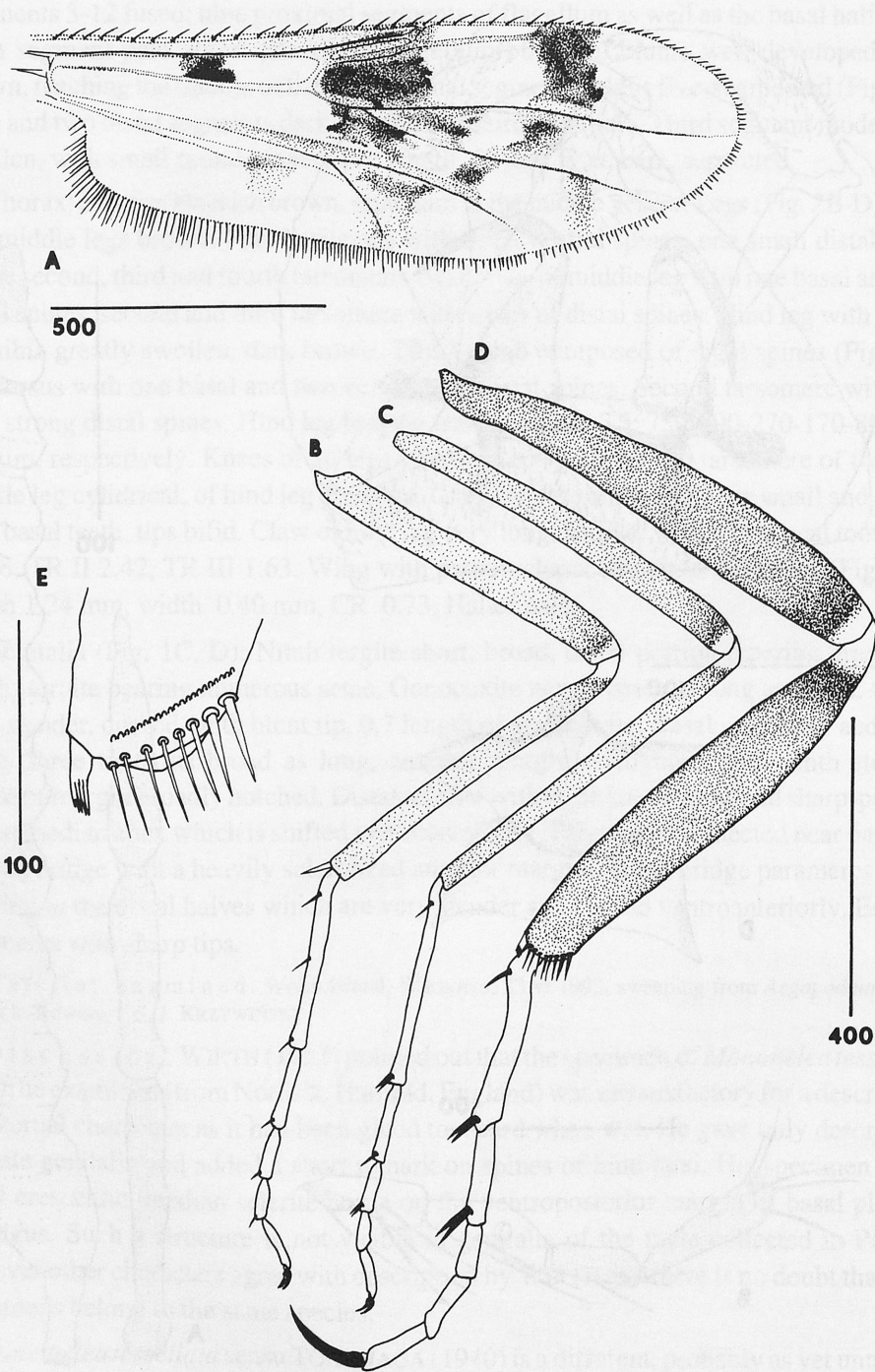


Fig. 2. *Allohelea tessellata* (ZETT.): A – wing; B – fore leg; C – middle leg; D – hind leg; E – tibial comb. Scale in μm .

***Serromyia tecta* BORKENT, 1990**

Serromyia tecta BORKENT in BORKENT and BISSETT, 1990: 205 (♂, ♀, Austria, figs.)

D i a g n o s i s . F e m a l e . Body dark brown, scutum pruinose (bearing a short coat of fine spicules amongst long setae). Hind claws relatively small, equal, similar to fore and mid leg claws. Hind coxa lacking strong lateral bristles.

D i s c u s s i o n . The species is very similar to Nearctic *S. borealis* BORKENT. BORKENT and BISSETT (1990) suggested that both species may be conspecific. It is worth of noting that the specimen collected in Poland is much bigger than types of *S. tecta* and *S. borealis*; their wing lengths are, respectively 2.27 mm, 1.55-1.57 mm and 1.60-1.72 mm. Also hind claws are a little longer in the author's specimen, HC/T5 0.49 in comparison with type specimens of *S. tecta* (HC/T5 0.38-0.43) and *S. borealis* (HC/T5 0.36-0.42). However, antennal and tarsal ratios and ratio of antennal flagellomeres 8/9 are the same for the types of *S. tecta* and the Polish specimen.

M a t e r i a l e x a m i n e d . Łodzinka Górna near Przemyśl, 4 vi 1993, netting on peaty meadow, 1 ♀, J. KRZYWIŃSKI.

D i s t r i b u t i o n . Few specimens of *S. tecta* (4 ♂♂ and 3 ♀♀) were known only from the type locality [Traun, Austria]. This is the first record in Poland and the second known locality of this species.

***Mallochohelea setigera* LOEW, 1864**

Ceratopogon setiger LOEW, 1864: 380 (♀, Germany).

Ceratolophus setiger (LOEW); KIEFFER, 1906: 61 (combination).

Sphaeromyias setiger (LOEW); KIEFFER, 1919: 87 (♀, combination).

Johansennomyia setigera (LOEW); EDWARDS, 1926: 414 (♂, ♀, =*silvicola*, England); GOETGHEBUER, 1934: 58 (♂, ♀, fig., distribution); ZILAHÍ-SEBESS, 1940: 76 (♂, ♀, Hungary).

Mallochohelea setigera (LOEW); WIRTH, 1962: 279 (combination); REMM, 1967: 31 (♂, ♀, Azerbaijan); REMM, 1979: 41 (♂, ♀, Estonia); REMM, 1981: 27 (= *maiensis*).

Johansennomyia silvicola GOETGHEBUER, 1920: 75 (♂, Belgium, fig.); KIEFFER, 1925: 111 (♂, Belgium).

Mallochohelea maiensis REMM, 1971: 209 (♀, Russia).

D i a g n o s i s . F e m a l e . Pedicel orange, flagellum wholly black. All femora yellow apart from distal portions of mid and hind femora which are broadly black. Hind tibiae black, with a dorsal row of bristles. Halteres dark, wing veins dark. First two abdominal segments almost wholly yellow, the rest of abdomen brownish.

M a t e r i a l e x a m i n e d . Pińczów, 11 vi 1993, sweeping from bushes along the old river bed, 8 ♀♀, J. KRZYWIŃSKI.

D i s t r i b u t i o n . This is a widely distributed Palaearctic species recorded from Europe, Caucasus and Far East of Russia; the first record in Poland.

REFERENCES

- BORKENT A., BISSETT B. 1990. A revision of the Holarctic species of *Serromyia* MEIGEN (Diptera, Ceratopogonidae). Systematic Entomol., 15: 153-217.

- EDWARDS F. W. 1926. On the British biting midges (*Diptera*, *Ceratopogonidae*). Trans. R. ent. Soc. Lond., **74**: 389-426.
- GOETGHEBUER M. 1920. *Ceratopogoninae* de Belgique. Mém. Mus. r. hist. nat. Belg., **8**: 1-115.
- GOETGHEBUER M. 1934. *Heleidae* (*Ceratopogonidae*), A. Die Imagines. In: GOETGHEBUER M., LENTZ F. Die Fliegen der Paläarktischen Region **13a**, Stuttgart, 133 pp.
- KIEFFER J. J. 1906. *Chironomidae*, In: Genera Insectorum **42**, Bruxelles, 78 pp.
- KIEFFER J. J. 1919. Chironomides d'Europe conservés au Musée National Hongrois de Budapest. Ann. hist.-nat. Mus. nat. hung., **17**: 1-160.
- KIEFFER J. J. 1925. *Chironomidae. Ceratopogoninae*. Fauna de France, **11**, Paris, 139 pp.
- LOEW H. 1864. Über die in der zweiten Hälfte des Juli 1864 auf der Ziegelwiese bei Halle beobachteten *Dipteren*. Z. ges. Naturw., **24**: 377-396.
- REMM H. 1967. K faunie mokrecov (*Diptera*, *Ceratopogonidae*) Kavkaza. Tartu Riikli. Ülik. Toim. **194**: 3-37.
- REMM H. 1971. K faunie mokrecov (*Diptera*, *Ceratopogon*) [sic!] Južnovo Primoria. In: Živaja priroda Dal'nego Vostoka. Tallin: 182-220.
- REMM H. 1979. Eesti NSV habesääsklaste (*Diptera*, *Ceratopogonidae*) fauna kataloog. Eesti NSV Tead. Akad., Tartu: 40-60.
- REMM H. 1981. New synonyms and new names of the Palaearctic *Ceratopogonidae* (*Diptera*). Izv. Akad. Nauk Est. SSR, Biol., **30**: 27-32.
- SZADZIEWSKI R. 1986. Redescriptions and notes on some *Ceratopogonidae* (*Diptera*). Pol. Pismo entomol., **56**: 3-103.
- SZADZIEWSKI R. 1991. *Ceratopogonidae*, In: RAZOWSKI J. (ed.), Wykaz zwierząt Polski. vol. 2, Ossolineum, pp. 103-109.
- TOKUNAGA M. 1940. *Chironomoidea* from Japan (*Diptera*), XII. New or little-known *Ceratopogonidae* and *Chironomidae*. Philipp. J. Sci., **72**: 255-311.
- WINNERTZ J. 1852. Beitrag zur Kenntniss der Gattung *Ceratopogon* MEIGEN. Linn. Entomol., **6**: 1-80.
- WIRTH W. W. 1953. American biting midges of the heleid genus *Monohalea*. Proc. United States Natl. Mus. **103**: 135-154.
- WIRTH W. W. 1962. A reclassification of the *Palpomyia-Bezzia-Macropeza* groups, and a revision of the North American *Sphaeromiini*. Ann. ent. Soc. Am., **55**: 272-287.
- WIRTH W. W., GROGAN W. L. 1988. The predaceous midges of the world. (*Diptera: Ceratopogonidae*; tribe *Ceratopogonini*). Flora & Fauna Handbook **4**, 160 pp.
- ZETTERSTEDT J. W. 1850. *Diptera Scandinaviae*. Lundae. **9**: 3367-3710.
- ZILAHÍ-SEBESS G. 1940. Magyarország Heleidái. Folia entomol. hung., **5**: 10-133.